

CLAIMS

1. A data processing apparatus for executing reproduction of data from a memory device or for recording of data into a memory device; wherein

said data processing device has a structure for executing reproduction of data from said memory device or recording of data into said memory device on condition that a mutual authentication between said data processing apparatus and said memory device is established; and

said data processing device further having:

a structure for executing a processing for said mutual authentication with a virtual memory device set inside of said data processing apparatus in case when said memory device has no function to execute said processing for said mutual authentication; and

a structure for executing said reproduction of data from said memory device or said recording of data into said memory device on condition that said processing of the mutual authentication conducted between said data processing apparatus and said virtual memory device is established.

2. The data processing apparatus according to Claim 1, wherein

said data processing apparatus further includes a structure for executing said processing of the mutual authentication between said memory device when said processing of the mutual authentication is available by initially checking whether said memory device for executing data reproduction or data recording is capable of executing said mutual authentication or not.

3. The data processing apparatus according to Claim 1, further including a structure wherein

such a key for authenticating distribution of an enabling key block, wherein said authenticating key is previously enciphered by such an enabling key block containing an enciphering data for enciphering renewal keys on such paths for constituting a hierarchical key tree structure comprising a variety of keys disposed in correspondence with such roots, nodes, and leaves on such paths ranging from roots to leaves of said key tree structure comprising a plurality of data processing apparatuses as own leaves, wherein said enciphering data further comprises upper-rank keys to be enciphered by lower-rank keys; and

said processing of the mutual authentication executed between said data

processing apparatus and said virtual memory device is solely executed by applying said enabling key block distribution authenticating key and the other authenticating key previously stored in said virtual memory device.

4. The data processing apparatus according to Claim 3, wherein

only a properly licensed data processing apparatus is enabled to decode said enabling key block, whereas such a data processing apparatus devoid of a proper license is unable to decode said enabling key block in a plurality of data processing apparatuses jointly constituting leaves of said key tree structure; and

said data processing apparatus prevents such an improper data processing apparatus devoid of a proper license from illegally implementing mutual authentication with said virtual memory device by way of revoking said improper data processing apparatus.

5. The data processing apparatus according to Claim 3, wherein

said enabling key block distribution authenticating key enciphered and presented by said enabling key block is subject to a version controlling process by way of executing a process for renewing individual versions.

6. The data processing apparatus according to Claim 1, further including a structure wherein

in a key tree structure comprising a variety of keys disposed in correspondence with roots, nodes, and leaves on such paths ranging from roots to leaves of said key tree structure comprising a plurality of data processing apparatuses as own leaves,

those leaf-keys provided in correspondence with own leaves are respectively enciphered by a storage key proper to said individual data processing apparatuses and then stored in a memory means inside of the corresponding data processing apparatus.

7. The data processing apparatus according to Claim 1, further including a structure wherein

in a key tree structure comprising a variety of keys disposed in correspondence with roots, nodes, and leaves on such path ranging from roots to leaves of said key tree structure comprising a plurality of data processing apparatuses as own leaves, based on those leaf-keys provided in correspondence with own leaves,

a device key block as an assemblage of ciphered keys comprising mutually different individually enciphered node keys of plural steps ranging from own leaves up to upper-rank keys of said key tree structure is stored in a memory means inside of said data processing apparatus.

8. A data processing method for executing reproduction of data from a memory device or for recording of data into said memory device, said data processing method comprising:

a step of executing a mutual authentication process with a virtual memory device provided in said data processing apparatus in the case in which said memory device is devoid of such function to execute said mutual authentication; and

a step of executing reproduction of data from said memory device or recording of data into said memory device based on condition that said mutual authentication is actually effectuated between said data processing apparatus and said virtual memory device.

9. The data processing method according to Claim 8, further comprising:

a step of identifying whether said memory device for executing reproduction or recording of data is capable of executing said mutual authentication or not; and

a step of executing a processing for said mutual authentication between said data processing apparatus and said memory device in case when said execution of said mutual authentication is possible.

10. The data processing method according to Claim 8, wherein

said data processing apparatus comprises an enabling key block distribution authenticating key, wherein said authenticating key is previously enciphered by such an enabling key block containing data for enciphering renewal keys on such path for constituting such a key tree structure comprising a variety of keys respectively disposed in correspondence with roots, nodes, and leaves on such paths ranging from roots to leaves of said key tree structure comprising a plurality of data processing apparatuses as own leaves, wherein said enciphering key also include a data for enciphering upper-rank keys via lower-rank keys; wherein

said mutual authentication process executed between said data processing apparatus and said virtual memory device is solely executed by applying said enabling key

block distribution authenticating key and the other authenticating key previously stored in said virtual memory device.

11. A license system for providing a data processing system with a proper license comprising;

a means for providing an enabling key block distribution authenticating key previously enciphered by such an enabling key block containing data for enciphering renewal keys on such paths for constituting a key tree structure comprising a variety of keys disposed in correspondence with root, nodes, and leaves on such path ranging from roots to leaves of said key tree structure comprising a plurality of data processing apparatuses as own leaves, wherein said enabling key block also comprise such data for enciphering upper-rank keys via lower-rank keys;

a means for executing a process for reproducing data from said memory device or recording data into said memory device solely based on condition that a mutual authentication is actually effectuated between said data processing apparatus and said memory device even when said memory device is devoid of function to execute mutual authentication with said data processing apparatus; and

a means for enabling only such a properly licensed data processing apparatus to properly decode said enabling key block providing said enabling key block distribution authenticating key among a plurality of data processing apparatuses for constituting said key tree structure and a means for preventing such an improper data processing apparatus devoid of a proper license from illegally decoding said enabling key block, whereby preventing said improper data processing apparatus from illegally effectuating authentication with said virtual memory device to further prevent said improper data processing apparatus from illegally utilizing contents data.

12. A program providing medium which provides a computer system with a specific computer program for executing reproduction of data from a memory device or recording of data into a memory device; said computer program comprises:

a step of executing a mutual authentication between a data processing apparatus and such a virtual memory device provided in a corresponding data processing apparatus in the case in which the above-referred memory device is devoid of function to execute mutual authentication; and

a step of executing reproduction of data from said memory device or recording of data into said memory device solely based on condition that said mutual authentication is actually effectuated between said data processing apparatus and said virtual memory device.

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